ODOR ABSORBING PAD FOR SHOES

FIELD OF INVENTION

The present invention relates to odor absorbing pads for shoes and more particularly, to odor absorbing pads for removing odor from shoes.

BACKGROUND OF INVENTION

The use of shoe liners is known in prior art. More specifically, shoe liners heretofore devised and utilized for a purpose of providing comfort to a user and removing odor are known to consist basically of familiar, expected and obvious structural configurations. By way of example, the prior art includes U.S. Pat. No. 5,399,404; U.S. Pat. No. 4,864,740; U.S. Pat. No. 4,257,176; U.S. Pat. No. 4,185,402; and U.S. Pat. No. 5,261,169.

Odor absorbing pads often contain a desired specific powder. The specific powder may be an anti-fungal powder, an anti-odor powder, a medicinal powder, or a scented powder. Although the specific powder will serve its purpose if released from the odor-absorbing pad, it is often trapped therein. The odor absorbing pads previously devised have no means of actuating the specific powder and thereby forcing it into a foot compartment of a shoe.

Therefore, it can be appreciated that there exists a continuing need for a new and improved odor absorbing pads for shoes with a springing means to actuate and release a specific powder. In this regard, the present invention substantially fulfills this need.

SUMMARY OF INVENTION

The odor absorbing pad in the present invention comprises a spring-loaded powder dispersion system for dispersing powder into a foot compartment of a shoe. The spring-loaded powder dispersion system comprises a top portion with a breathable

aperture therein, an air passage portion, an elastically deformable housing, and a springing means.

The air passage portion has elastically deformable sidewalls, an open top part, and an open bottom part. The open top part and the open bottom part are substantially separated from one another and the open top part is in fluid communication with the breathable aperture of the top portion. Additionally, the air passage portion selectively allows for air to be stored in the air passage portion or for air to pass through the air passage portion.

The elastically deformable housing has a top portion and a bottom portion. The top portion of the elastically deformable housing is in air-permeable communication with the open bottom part of the air passage portion. Furthermore, the elastically deformable housing contains a powder delivery medium.

The springing means is in contact with the bottom portion of the elastically deformable housing. When the spring-loaded powder dispersion system is actuated, the springing means moves the elastically deformable housing, causing the powder delivery medium to release a specific powder. The specific powder is then passed from the elastically deformable housing through the breathable aperture into a foot compartment of a shoe, where it is distributed about a foot.

In another aspect, the powder delivery medium is selected from a group consisting of charcoal and baking soda.

In yet another aspect, the specific powder includes a powder selected from a group consisting of an anti-fungal powder, an anti-odor powder, a medicinal powder, and a scented powder.

Additionally, the top portion is substantially circular in shape and the breathable aperture is made of a porous material containing micro-holes.

Furthermore, the elastically deformable housing is constructed of plastic and comprises a plurality of compartments. Any compartment is interchangeable with any other compartment in the plurality of compartments. Additionally, each compartment contains a powder delivery medium with a specific powder, where the specific powder of a compartment is different from the specific powder of other compartments. Moreover, a compartment with a specific powder content may be placed in the elastically deformable housing at any position.

In yet another aspect, the elastically deformable housing is configured such that a compartment containing a specific powder can be manually removed from the elastically deformable housing and replaced with another compartment containing a different specific powder.

In addition, the spring-loaded dispersion system is formed such that it is detachably attachable with a sole of a shoe or such that it is permanently attachable with a sole of a shoe.

In another aspect, when the spring-loaded powder dispersion system is actuated, the springing means, the elastically deformable housing, the air passage portion, and the top portion are configured to generate an airflow through the spring-loaded powder dispersion system, thereby significantly preventing moisture from penetrating into the elastically deformable housing.

In yet another aspect, a height of the top portion is less than about 1/16 of an inch, a height of the air passage portion is less than about 1/8 of an inch, a height of the elastically deformable housing is less than about 1/8 of an inch, and a height of the springing means is less than about 1/4 of an inch.

Furthermore, a moisture absorbent portion is attached above the top portion. The moisture absorbent portion reduces an amount of moisture penetrating into the spring-loaded powder dispersion system. The moisture absorbent portion has a center aperture, allowing free passage of air and powder from the spring-loaded powder dispersion system into the foot compartment of a shoe. Additionally, the moisture absorbent portion is filled with a highly absorbent material surrounded by a hydrophobic material in order to absorb and retain a substantial part of any moisture generated by the foot.

In another aspect, the spring-loaded powder dispersion system comprises a pair of spring-loaded powder dispersion systems. The pair has a front system and a rear system, with the front system having a first springing means with a first bottom face and the rear system having a second springing means with a second bottom face. The first bottom face and the second bottom face have a layer of adhesive formed thereon. Through the layer of adhesive, the first springing means is adhered with a top surface of a sole of a shoe near a front end thereof and a second springing means is adhered with the top surface of the sole of the shoe near a rear end thereof.

In yet another aspect, the springing means is coated with an anticorrosive material.

In another aspect, the odor absorbing pad comprises a powder dispersion system for dispersing powder into a foot compartment of a shoe, where the shoe contains a springing means imbedded into an interior of a sole of the shoe. The powder dispersion system comprises a top portion having a breathable aperture therein, an air passage portion, an elastically deformable housing, and a springing means embedded into the interior of a sole of a shoe

In this aspect, the springing means is embedded into the interior of a sole of a shoe. The springing means is in fluid communication with the bottom portion of the

elastically deformable housing. When the powder dispersion system is actuated, the springing means moves the elastically deformable housing, causing the powder delivery medium to release a specific powder. The specific powder is then passed from the elastically deformable housing and through the breathable aperture into a foot compartment of a shoe where it is distributed about a foot.

In another aspect, the spring-loaded dispersion system comprises a top portion having a breathable aperture therein, an air passage portion, and an elastically deformable housing. The elastically deformable housing has a top portion and a bottom portion. The top portion of the housing is in air-permeable communication with the open bottom part of the air passage portion. Additionally, the housing contains a power delivery medium and a springing means. When the spring-loaded powder dispersion system is actuated, the springing means pushes air through the elastically deformable housing, causing the powder delivery medium to release a specific powder. The specific powder is then passed from the elastically deformable housing through the breathable aperture into a foot compartment of a shoe where it is distributed about a foot.

In another aspect, the springing means imbedded into the elastically deformable housing is coated with an anticorrosive material.

In another aspect, the present invention comprises a method for forming a spring-loaded powder dispersion system. The method comprises acts of selecting a top portion with a breathable aperture; selecting an air passage portion having elastically deformable side walls, an open top part, and an open bottom part, where the open top part and the open bottom part are substantially separated from one another; attaching the open top part of the air passage portion with the breathable aperture of the top portion; selecting an elastically deformable housing having a top portion, a bottom portion, and containing a powder delivery medium; attaching the top portion of the elastically deformable housing with the open bottom part of the air passage portion; selecting a springing means; and attaching the spring means with the bottom portion of the elastically deformable housing.

In another aspect, the method for forming a spring-loaded powder dispersion system further comprises acts of selecting a moisture absorbent portion and attaching the moisture absorbent portion with the top portion. The moisture absorbent portion reduces an amount of moisture penetrating into the spring-loaded powder dispersion system.

In yet another aspect, the method for forming a spring-loaded powder dispersion further comprises an act of adding an additional spring-loaded powder dispersion system, thereby comprising a pair of spring-loaded powder dispersion systems. The pair has a front system and a rear system. Additionally, the front system has a first springing means with a first bottom face and the rear system has a second springing means with a second bottom face.

In another aspect, the first springing means and the elastically deformable housing have a springing diameter and a housing diameter, and the springing diameter may be greater than the housing diameter.

In another aspect, the front system and the rear system have a front height and a rear height, and the rear height may be greater than the front height.

Finally, in the act of adding an additional spring-loaded powder dispersion system, the first bottom face and the second bottom face have a layer of adhesive formed thereon. With the layer of adhesive, the first springing means is attached with a top surface of a sole of a shoe near a front end thereof and a second springing means is attached with the top surface of the sole of the shoe near a rear end thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

The nature of the odor absorbing pads described herein will be readily apparent in the following drawings, in which:

FIG. 1A is a cross-sectional view of the present invention, illustrating each section of a spring-loaded powder dispersion system;

FIG. 1B is a top perspective view of the present invention, illustrating a top portion having a breathable aperture therein;

FIG. 2 is a side perspective of the present invention, illustrating the inter-relation between each section;

FIG. 3A is a top perspective view of the present invention, illustrating a moisture absorbent portion with a pair of spring-loaded powder dispersion systems attached thereto;

FIG. 3B is a side perspective view of the present invention, illustrating the moisture absorbent portion with the pair of spring-loaded powder dispersion systems attached thereto;

FIG. 4 is a top view of the present invention, showing the pair of spring-loaded powder dispersion systems positioned within a shoe;

FIG. 5 is a side perspective view of the present invention, showing the pair of spring-loaded powder dispersion systems positioned within the shoe;

FIG. 6 is a top perspective view of the present invention, illustrating another aspect, where the shoe contains a springing means imbedded into a sole of the shoe; and

FIG. 7 is side perspective view of the present invention, illustrating another aspect, where the shoe contains a springing means imbedded into the sole of the shoe.

DETAILED DESCRIPTION

The present invention relates to odor absorbing pads for shoes. More particularly, it relates to odor absorbing pads having a spring-loaded powder dispersion system. The spring-loaded powder dispersion system has a springing means, whereby when actuated, the springing means causes a powder delivery medium to release a specific powder which is passed through a breathable aperture into a foot compartment of a shoe where it is distributed about a foot.

The following description, taken in conjunction with the referenced drawings, is presented to enable one of ordinary skill in the art to make and use the invention. Various modifications will be readily apparent to those skilled in the art, and the general principles defined herein may be applied to a wide range of aspects. Thus, the present invention is not intended to be limited to the aspects presented, but is to be accorded the widest scope consistent with the principles and novel features disclosed herein. Furthermore it should be noted that unless explicitly stated otherwise, the figures included herein are illustrated diagrammatically and without any specific scale, as they are provided as qualitative illustrations of the concept of the present invention.

Referring to the figures, FIG. **1A** illustrates an aspect of the spring-loaded powder dispersion system **100** in accordance with the present invention. The spring-loaded powder dispersion system **100** has a top portion **102** with a breathable aperture **104** therein. The top portion **102** may be any suitable shape. For example, from a top perspective view, the top portion **102** may be substantially circular in shape, or from a side perspective view, may have a dome. Additionally, the top portion may be constructed of any suitable material, a non-limiting example of which includes polyurethane. The breathable aperture **104** may be constructed of any suitably porous material containing micro-holes.

The spring-loaded powder dispersion system **100** also has an air passage portion **106**. The air passage portion **106** has elastically deformable sidewalls, an open top part **108**, an open bottom part **110**, and micro-holes **112**. The air passage portion **106** may be constructed of any suitable material, a non-limiting example of which includes plastic. The open top part **108** and the open bottom part **110** are substantially separated from one another. Additionally, the open top part **108** is in fluid communication with the breathable aperture **104** of the top portion **102**, such that the air passage portion **106** selectively allows for air to be stored in the air passage portion **106** or for air to pass through the air passage portion **106** through the micro-holes **112**.

In communication with the air passage portion **106** is an elastically deformable housing **114**. The elastically deformable housing **114** has a top portion **116** and a bottom portion **118**. The top portion **116** is in air-permeable communication with the open bottom part **110** of the air passage portion **106**. The elastically deformable housing **114** may be constructed of any suitable material, non-limiting examples of which include plastic or polyurethane.

Additionally, the elastically deformable housing **114** contains a plurality of manually interchangeable compartments **120**. Each compartment **120** contains a powder delivery medium with a specific powder. The powder delivery medium may be any suitable medium for delivering a powder, non-limiting examples of which include charcoal and baking soda. The specific powder may be any powder providing a desirable result, non-limiting examples of which include anti-fungal powder, an anti-odor powder, a medicinal powder, and a scented powder.

In contact with the bottom portion **118** of the elastically deformable housing **114** is a springing means **122**. The springing means **122** may be any suitable means for creating an expansive force, a non-limiting example of which includes a metal spring **124**. The springing means **122** may be coated with an anti corrosive material. When the

spring-loaded powder dispersion system **100** is actuated, the springing means **122** moves the elastically deformable housing **114**, causing the powder delivery medium to release a specific powder.

Each section may be any suitable size or height. For example, a height of the top portion **102** may be less than about 1/16 of an inch, a height of the air passage portion **106** may be less than about 1/8 of an inch, a height of the elastically deformable housing **114** may be less than about 1/8 of an inch, and a height of the springing means **122** may be less than about 1/4 of an inch.

Illustrated in FIG. **1B** is a top-perspective view of the spring-loaded powder dispersion system **100**. As shown in this perspective, the spring-loaded powder dispersion system **100** may be substantially circular in shape. Additionally, the breathable aperture **104** of the top portion **102** is accessible from the top-most portion of the spring-loaded powder dispersion system **100**.

FIG **2** illustrates the interrelation between each section. As shown in FIG. **2**, the springing means **122**, the elastically deformable housing **114**, the air passage portion **116**, and the top portion **102** are configured to generate airflow through the spring-loaded powder dispersion system **100**, thereby preventing moisture from penetrating into the elastically deformable housing **114**. When the spring-loaded powder dispersion system **100** is actuated, the springing means **122** moves the elastically deformable housing **114**, causing the powder delivery medium to release a specific powder. The specific powder is then passed from the elastically deformable housing **114** and through the micro-holes **112** in the air passage portion **106**. The specific powder then passes through the breathable aperture **104** into a foot compartment of a shoe where it is distributed about a foot.

Illustrated in FIGS. **3A** is a pair of spring-loaded powder dispersion systems **100**. As shown in this aspect, a moisture absorbent portion **200** is attached above the top

portion **102** of each spring-loaded powder dispersion system **100**, thereby reducing an amount of moisture from penetrating into the spring-loaded powder dispersion system **100**. The moisture absorbent portion **200** has a center aperture **202** allowing free passage of air and specific powder from the spring-loaded dispersion system **100** into the foot compartment of a shoe. The moisture absorbent portion **200** may be filled with a highly absorbent material surrounded by a hydrophobic material, effectively absorbing and retaining a substantial part of any moisture generated by a foot.

Illustrated in FIG. **3B** is a side perspective view of the moisture absorbent portion **200** attached with a pair of spring-loaded powder dispersion systems **100**. As shown, the spring-loaded powder dispersion systems **100** are in fluid communication with the center apertures **202**, allowing the specific powder to pass from the spring-loaded powder dispersion systems **100**, through the center apertures **202** and into the foot compartment of the shoe.

Illustrated in FIG. **4** is a pair of spring-loaded powder dispersion systems **100** placed within a shoe **400**. The spring-loaded powder dispersion systems **100** are formed such that they may be detachably attachable with a sole of the shoe, or may be permanently attached. When permanently attached, the pair has a front system **402** and a rear system **404**. The front system **402** has a first springing means **406** with a first bottom face **408** and the rear system **404** has a second springing means **410** with a second bottom face **412**. The first bottom face **408** and the second bottom face **412** have a layer of adhesive formed thereon. The first springing means **406** is adhered with a top surface of a sole **413** of the shoe **400** near a front end **414** thereof. Furthermore, the second springing means **410** is adhered with a top surface of the sole **413** of the shoe **400** near a rear end **416** thereof.

Illustrated in FIG. **5** is a side perspective view, showing the spring-loaded powder dispersion systems **100** attached with the top surface of a sole **413** of the shoe **400**. As shown, the first springing means **406** and second springing means **410** are attached with a

top surface of the sole **413** of the shoe **400**. They may be either detachably attachable or permanently attached.

Illustrated in FIG. **6** is another aspect of the present invention. In this aspect, the shoe **400** contains a springing means **122** embedded into an interior of a sole **600** of the shoe **400**. In fluid communication with the springing means **122** is a powder dispersion system **602**. The powder dispersion system **602** has a top portion **102**, an air passage portion **106**, and an elastically deformable housing **114**. When the powder dispersion system **602** is actuated, the springing means **122** moves the elastically deformable housing **114**, causing a powder delivery medium to release a specific powder. The specific powder is then passed from the elastically deformable housing **114**, through the powder dispersion system **602**, and into a foot compartment of the shoe **400** where it is distributed about a foot.

Illustrated in FIG. **7** is a side perspective view of another aspect of the present invention, showing a springing means **122** embedded into the interior of a sole **600** of the shoe **400**. As shown, the powder dispersion systems **602** are in fluid communication with the top surface of the sole **413** of the shoe **400**. They may be either detachably attachable or permanently attached.